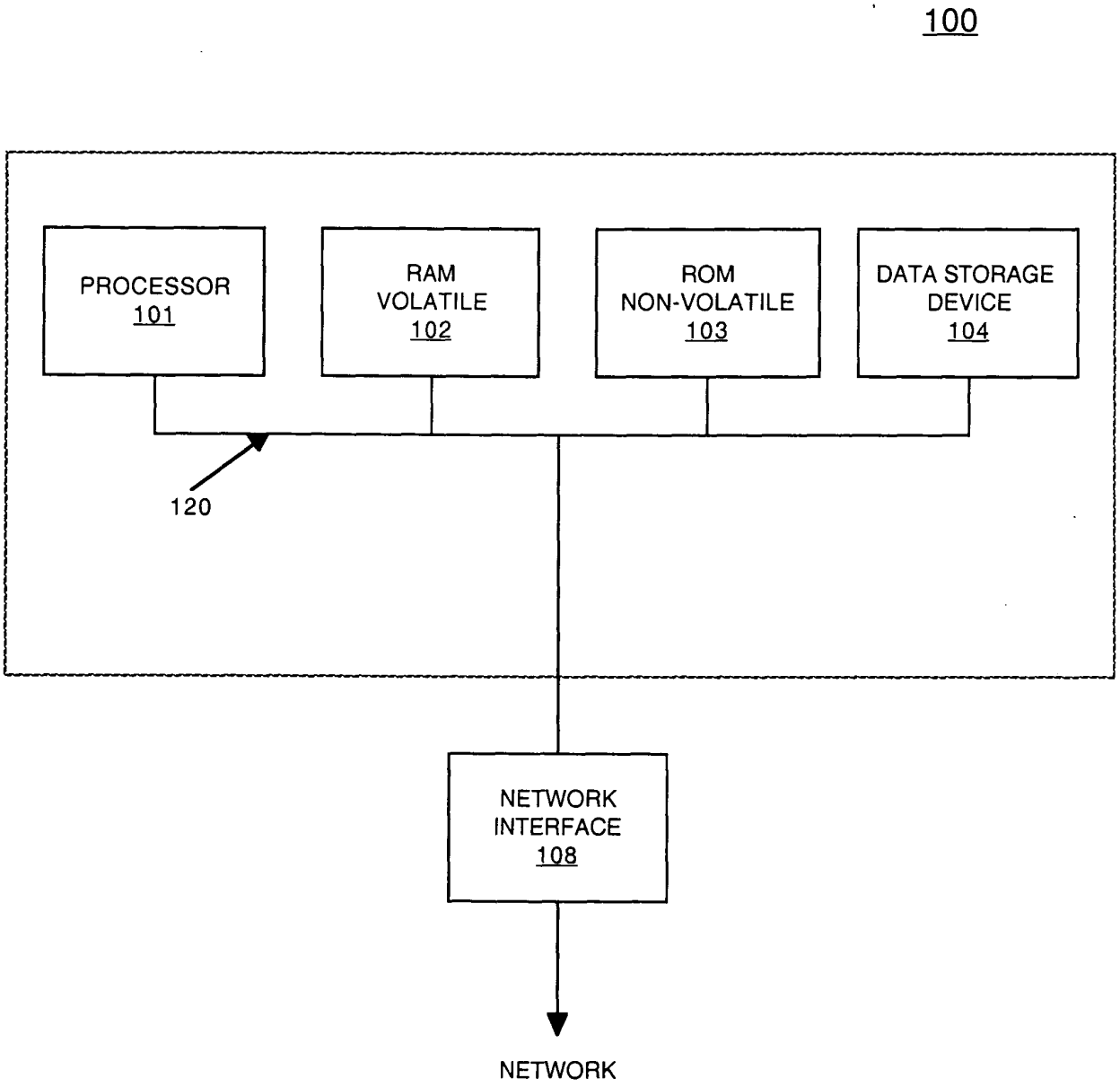
100
PROCESSOR
101
RAM
VOLATILE
102
ROM
NON-VOLATILE
103
DATA STORAGE
DEVICE
104
120
NETWORK
INTERFACE
108
NETWORK

Figure 1

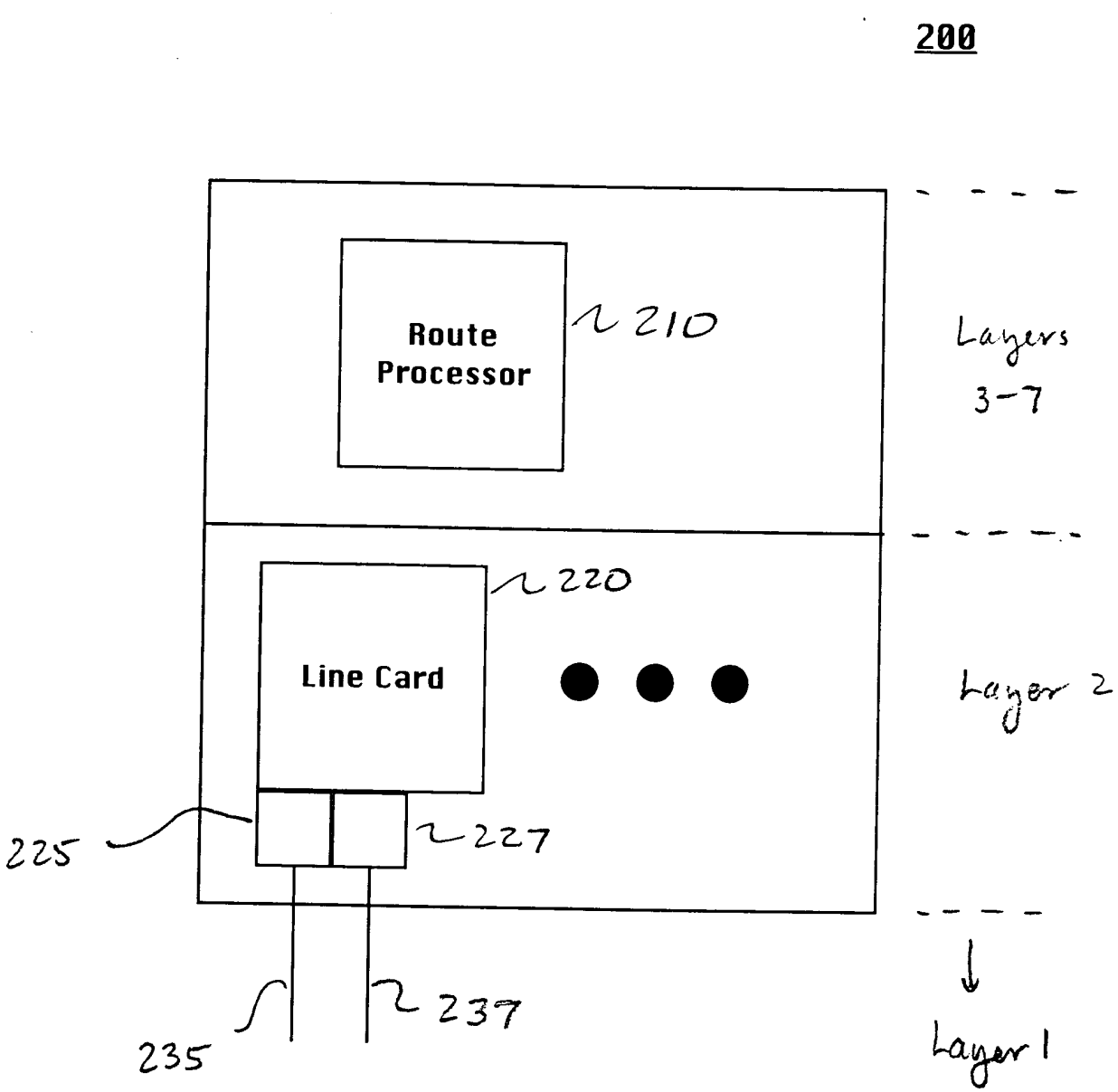
200
Route Processor
210
Layers 3-7
Line Card
220
Layer 2
225
227
235
237
Layer 1

Figure 2

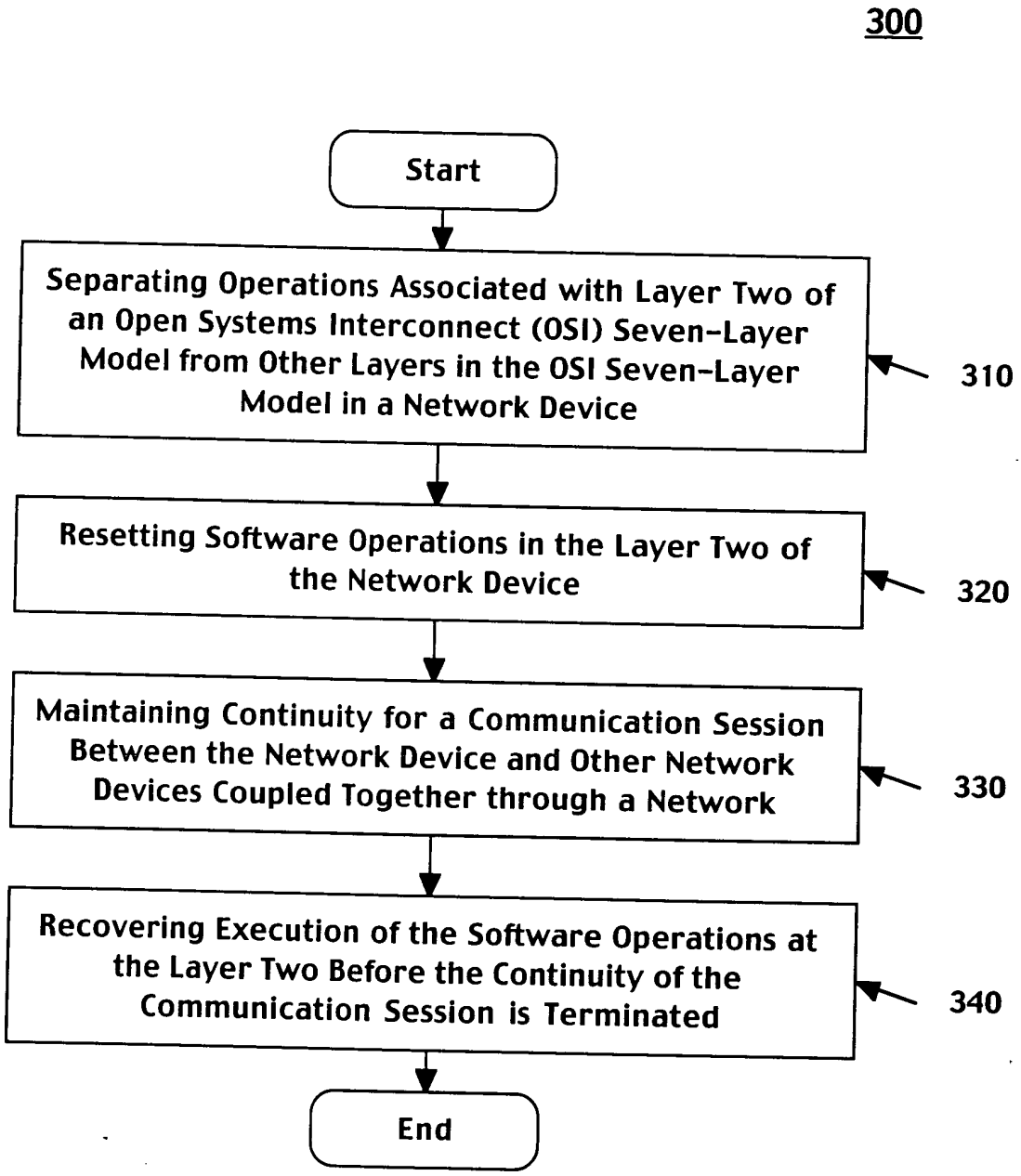
300
Start
Separating Operations Associated with Layer Two of an Open Systems Interconnect (OSI) Seven-Layer Model from Other Layers in the OSI Seven-Layer Model in a Network Device
310
Resetting Software Operations in the Layer Two of the Network Device
320
Maintaining Continuity for a Communication Session Between the Network Device and Other Network Devices Coupled Together through a Network
330
Recovering Execution of the Software Operations at the Layer Two Before the Continuity of the Communication Session is Terminated
340
End

Fig. 3

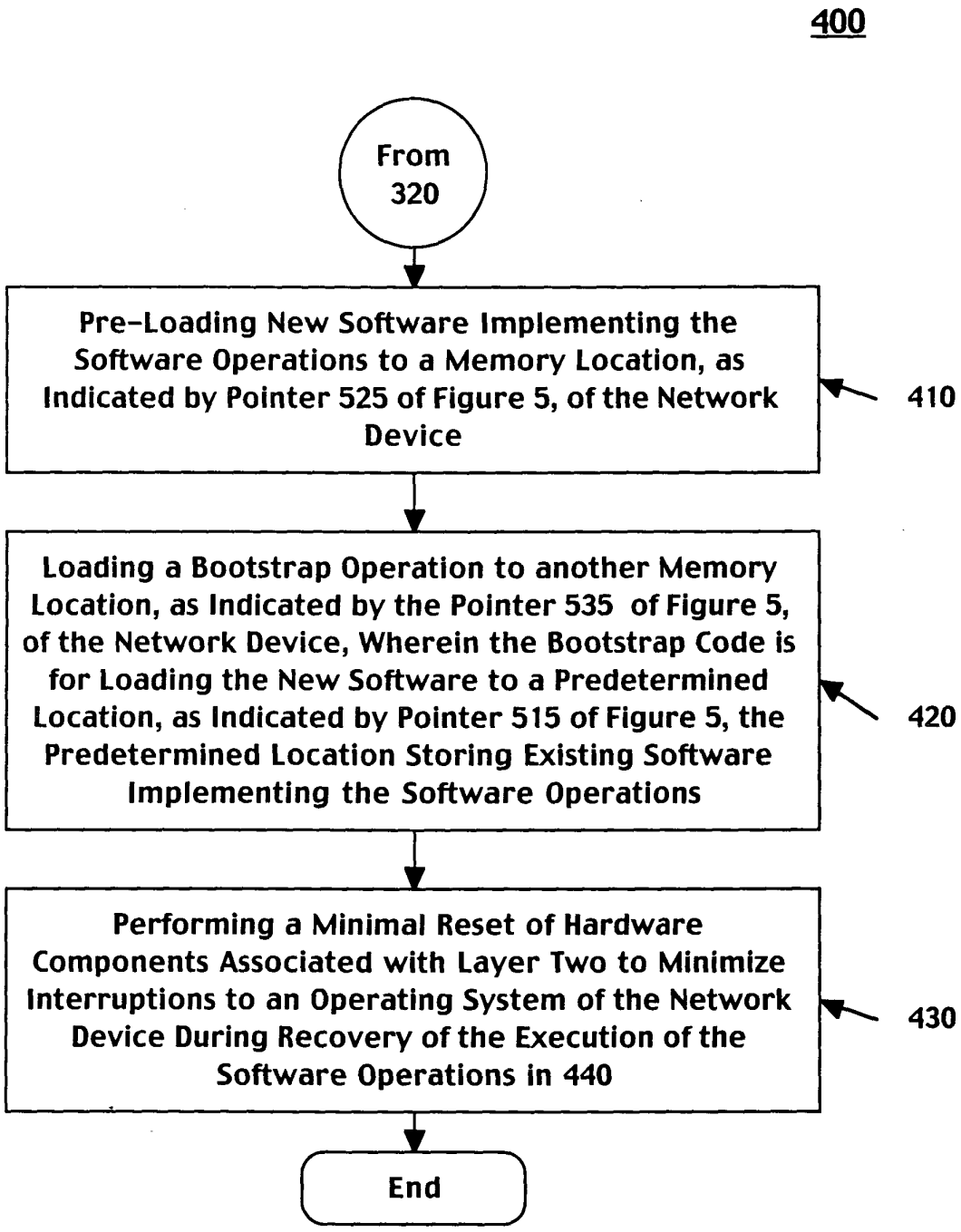
400
From 320
Pre-Loading New Software Implementing the Software Operations to a Memory Location, as Indicated by Pointer 525 of Figure 5, of the Network Device
410
Loading a Bootstrap Operation to another Memory Location, as Indicated by the Pointer 535 of Figure 5, of the Network Device, Wherein the Bootstrap Code is for Loading the New Software to a Predetermined Location, as Indicated by Pointer 515 of Figure 5, the Predetermined Location Storing Existing Software Implementing the Software Operations
420
Performing a Minimal Reset of Hardware Components Associated with Layer Two to Minimize Interruptions to an Operating System of the Network Device During Recovery of the Execution of the Software Operations in 440
430
End

Fig. 4

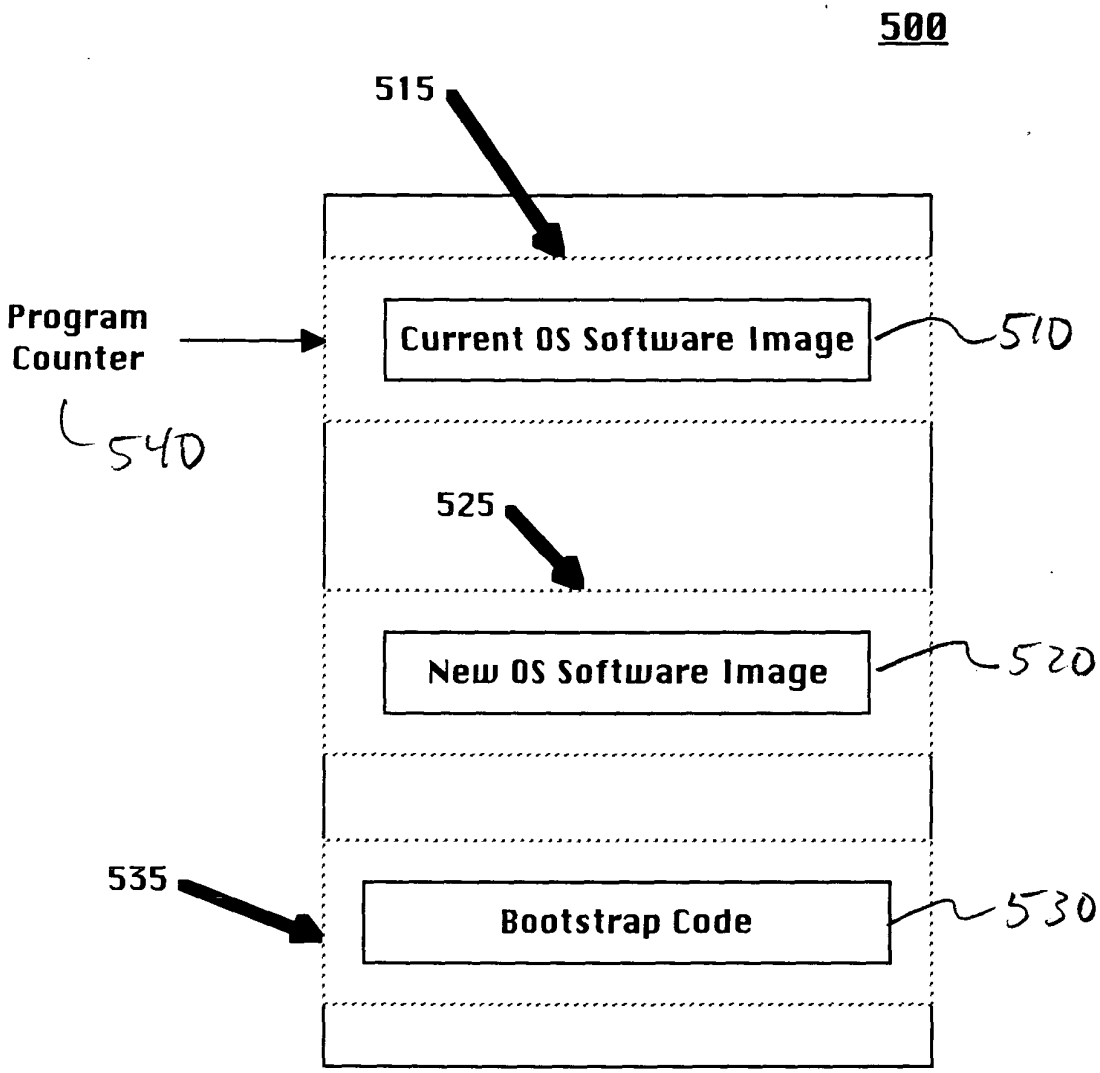
500
515
Program Counter
540
Current OS Software Image
510
525
New OS Software Image
520
535
Bootstrap Code
530

Figure 5

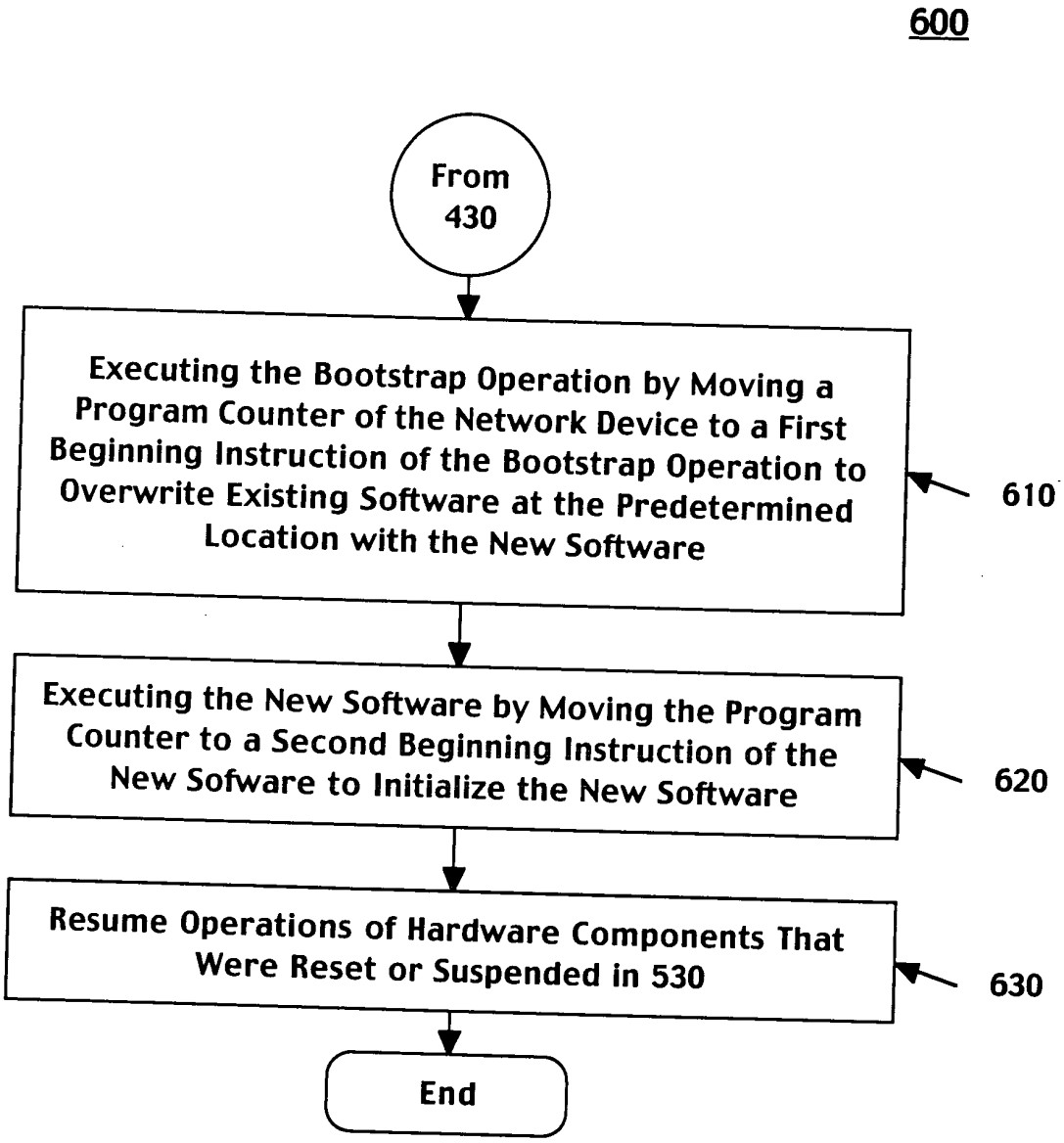
600
From 430
Executing the Bootstrap Operation by Moving a Program Counter of the Network Device to a First Beginning Instruction of the Bootstrap Operation to Overwrite Existing Software at the Predetermined Location with the New Software
610
Executing the New Software by Moving the Program Counter to a Second Beginning Instruction of the New Sofware to Initialize the New Software
620
Resume Operations of Hardware Components That Were Reset or Suspended in 530
630
End

Fig. 6